

Professor: Steve Brinton

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Office Hours: MWF 11:25-12:25, MW 2:10-3:10, Thur. 10:20-11:20

Class Hours: MWF 1-2 pm (MAC211)

Lab: Thurs 1:15pm - 4:15pm (Mac Lab - MAC110)

Class Website: <http://www.math-cs.gordon.edu/courses/cps111/index.php>

Purpose:

Computer science is a discipline which is both well-known and broadly misunderstood. To many, computer science refers to the acquisition of certain skills for using a computer. In other words, some think of learning to use a spreadsheet program, a word processor, or a web browser as "computer science." The term causes others to imagine people sitting in somewhat darkened rooms typing endless lines of cryptic code into a computer to create a remarkable new computer program. Some imagine engineers in Silicon Valley developing massive supercomputers or amazingly small microcomputers. Still others hear the term and envision anarchistic hackers roller-blading with laptop computers equipped to bring the world to its knees. In truth, all of these notions have something to do with "computer science" but none of them is sufficient to represent the richness of the topic.

In this course, you will be challenged to develop a clearer understanding of the term "computer science" which, in fact, embodies all of these notions and more. You will see that computer science has much to do with developing a new video game, but it is also a philosophically interesting pursuit with mathematically elegant underpinnings. You will learn how to get work done with a computer, as well as how a computer works. You will understand how to use a computer, but also ways in which computers are sometimes manipulated to "use" us. Through reading and discussion you will begin to examine the evolution of our "digital society" and how it affects our lives and how it might affect us differently in the future.

In a practical light, you will become familiar with Scratch (which is a cool animation-type language developed by MIT), the Java language (which is one of the most popular languages in the world - over 5000 jobs on Monster.com) and HTML which may be used to develop web-based computer applications. You will also be prepared to engage in further study in computer science.

Prerequisites:

While no formal prerequisite coursework is required before attending this course, it is important for all students to be aware that this class has components which require strong mathematical reasoning, logical reasoning, and abstract reasoning.

Consequently, students with weak ability in one or more of these areas are strongly encouraged to discuss this with the professor during the first week of classes to determine whether the course is suitable for their needs.

Important Note! This course may be used to fulfill core requirements in the Natural Science division; however, it is important that students recognize that this course is designed as the introduction to the major for incoming computer science students rather

than as a course specifically designed to serve the core. Past students have commented that the workload was far more than they expected of a "core course".

Texts: Invitation to Computer Science, Third Edition: Java Version
by G.Michael Schneider and Judith L. Gersting
2007, Thomson Course Technology
ISBN: 1-4188-3654-0

Invitation to Computer Science Laboratory Manual: C++ and Java
by Kenneth Lambert and Thomas Whaley
2007, Thomson Course Technology
ISBN: 1-4188-3754-7

Course Expectations:

A. Lecture and Reading

Reading from the course texts (along with other sources) will be assigned on a regular basis. All assignments must be read prior to the class in which the material will be discussed since the lecture will assume this degree of familiarity with the topic. Class sessions will include a discussion and amplification of the assigned material and the presentation of further examples and supplementary material. You should not necessarily expect to grasp everything when you first read it; however, you should note areas which are unclear to you and be prepared to raise questions about them in class. If you read the material only after its lecture, you will not be able to participate effectively during the lecture and you are likely to feel as though lecture is only for note-taking rather than the intended learning experience.

All students are expected to attend lecture regularly and will be responsible for all material covered during class. In the event of an unavoidable absence, it is the student's responsibility to learn of any material or assignments from the missed class. (Also see section entitled: *attendance policy*)

B. Homework

Homework exercises will be assigned throughout the semester. Only a random assortment of the problems will be graded. All homework assignments must be typed and submitted on time – otherwise it will not be given credit. (Some problems will require diagrams – in these cases it will be alright to submit a diagram which is very clear and easy to read.)

C. Exams

Three times during the course you will receive the opportunity to solve problems during an entire class session. The opportunities will be administered on the dates listed in the course schedule. Each opportunity will assume familiarity with material from the text, from lecture, from homework problems and from laboratory work. Exams will be closed book.

D. Laboratory

Additional significant practice will come from a series of laboratory assignments. These assignments typically involve the modules in the course laboratory manual, as well as

additional projects from outside this manual. Laboratory work will typically be completed by partners. It is important that both partners in a team are fully aware of all material presented in the laboratory since all students will be responsible for any information presented in the laboratory.

Often a pre-laboratory reading assignment will be given. It is essential that all pre-laboratory assignments be completed before arriving in lab. The time in lab is very limited; thus, sufficient preparation is important.

Each laboratory will be evaluated on a Credit/No Credit basis. The final laboratory grade will be determined by summing the number of laboratory credits and dividing by the number of available credits. The material covered in the laboratory may be further evaluated via exam.

In the event that a student is absent during a laboratory period, the student is responsible to complete the assignment, with a one-half credit penalty, no later than the beginning of the next laboratory period. After this final due date the assignment will not be accepted for credit; however, it may be completed without credit in order for the student to master the material.

IMPORTANT NOTE: Students who fail to receive credit for three or more laboratories will have final course grades reduced by one letter grade for each missing laboratory after the second. This penalty is in addition to the lowered laboratory grade.

E. Semester Programming Project and Presentation

All students will be given the opportunity to develop a programming project for the semester. Each programming project will teach something (examples: states or capital identification, computer science concepts such as Boolean algebra, basic math skills, rock identification, Biblical facts, etc.)

A project proposal must first be approved by the instructor before proceeding with project development. If the project is significant enough, a team consisting of two students will be allowed. Project work will fall into 4 categories: project proposal creation and approval, project design, project implementation, and project presentation.

F. Collaborative Learning

Quality learning takes place when students share the experience of learning. Students will be rewarded when they make an effort in promoting learning for this class. This particular expectation can also be called "class participation." The student will need to take initiative by participating - starting discussions, asking questions, and answering questions on our Google groups website. Students can also give short presentations in class or during labs. Students can also seek other creative ways to aid in our educational endeavors. This will be subjectively graded.

Summary:

5% Collaborative Learning
 10% Homework
 25% Labs
 15% Semester Programming Project & Presentation
 10% Exam 1
 15% Exam 2
 20% Final Exam
 100%

Grading Scale:

A: <=100% >=95%	A-: <95% >=90%	B+: <90% >=86%
B: <86% >=84%	B-: <84% >=80%	C+: <80% >=76%
C: <76% >=74%	C-: <74% >=70%	D+: <70% >=66%
D: <66% >=64%	D-: <64% >=60%	F: <60% >=0%

Being Responsible:

At times, the amount of work required may seem insurmountable – however it is expected that each student be responsible to strive to do his or her best. On this note, pilfering or borrowing answers from a classmate or other resource is not acceptable. It will result in a failing grade and any further action deemed appropriate by the college.

Policy Statement on Extensions and Incompletes:

Extensions of the due dates for homework or projects will be given in the event of extenuating circumstances (such as illness, personal emergency) If you submit a brief written request to the professor as soon as possible after the circumstances arise. This request will be initiated (if approved) and will be returned to you. You must attach it to the piece of work for which the extension was granted.

A grade of Incomplete will be given without penalty if you are unable to complete the course work by the last day of the term due to major illness or other similar emergency. Again, a written request should be submitted. Such a request will only be granted if you are substantially up-to-date with your course work and were making good progress in the course up to the time that the difficulty arose. Of course, you must complete all work for the course by the midpoint of the next semester in accordance with College policy.

Attendance Policy:

Regular class and lab attendance is expected of all students, and class attendance will be recorded. Absences from class will be classified as “documented” or “undocumented”. A documented absence is one where written documentation (typically supported with authoritative signatures - like a doctor, nurse, school administrator, etc) is submitted and approved by the professor supporting an absence from class due to circumstances beyond the student’s control (such as illness, family emergencies, etc.) An undocumented absence is any other absence. Students who have more than 3 undocumented absences will have penalty added to their final grade at the discretion of the professor.

A student who is habitually late will have late arrival for class counted as a half undocumented absence for that class, and a student who sleeps through most or all of a given class session will be counted as undocumented absent for that class.

A student who anticipates the need to miss more than three classes due to athletic competitions or other student activities should review the college's attendance policy on page 31 of the catalog, and should then discuss alternatives to class attendance with the professor at the start of the semester.

Students with Disabilities:

Gordon College is committed to assisting students with documented disabilities (see Academic Catalog Appendix C, for documentation guidelines). A student with a disability who may need academic accommodations should follow this procedure:

1. Meet with a staff person from the Academic Support Center (Jenks 412 X4746) to:
 - a. make sure documentation of your disability is on file in the ASC,
 - b. discuss the accommodations for which you are eligible,
 - c. discuss the procedures for obtaining the accommodations, and
 - d. obtain a **Faculty Notification Form**.
2. Deliver a Faculty Notification Form to each course professor *within the first full week of the semester*; at that time make an appointment to discuss your needs with each professor.

Failure to register in time with your professor and the ASC may compromise our ability to provide the accommodations. Questions or disputes about accommodations should be immediately referred to the Academic Support Center. See Grievance Procedures available from the ASC.